

PATENT ABSTRACTS OF JAPAN

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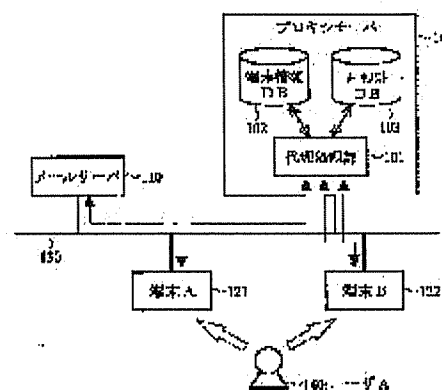
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(54) ELECTRONIC MAIL SYSTEM

(57) Abstract:

PROBLEM TO BE SOLVED: To establish synchronization of an electronic mail between terminal units without causing a user to be conscious in the case access is tried to one mail account from a plurality of terminal units.

SOLUTION: A proxy server 100 is provided between a plurality of terminal units 121 and 122 as mail client and a mail server 110, and thereby a mail operating command transmitted from these terminal units 121 and 122 is transferred to the mail server 110. The proxy server 100 is equipped with a terminal unit information database 102 to hold the information for identifying the terminal unit, a mail list database 103 to hold the information for making acquisition and deletion of electronic mail for each terminal unit, and an agency processing part 101 to perform response to the transmitting terminal unit and a transfer of the mail operating command to the mail server 110 on the basis of the received mail operating command and the databases 102 and 103.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] About an electronic mail system, especially this invention relates to the electronic mail system which synchronizes an E-mail between terminals, when connecting it with one mail account from two or more terminals.

[0002]

[Description of the Prior Art] When the same user as one mail account takes the directions for use accessed from two or more terminals, there is a problem that the synchronization of e-mail cannot be taken between terminals in the usual electronic mail system. Here, if the synchronization of e-mail cannot be taken, it will say that the contents of the mail box of each terminal are not in agreement. For example, since the mail downloaded at a certain terminal is not downloadable at other terminals, this mail is stored only in the mail box of the terminal which downloaded, but the situation where other mail boxes and contents of the terminal are not in agreement produces it.

[0003] In order to prevent this problem, it supposes setting out of the mail client of the mainly used terminal "E-mail is deleted from a server", Although what is necessary is just to suppose setting out of the mail client of other terminals "It leaves e-mail to a server", Since it will be generated by the terminal which cannot download the mail if the mainly used terminal downloads e-mail before other terminals download e-mail, Turn which acquires mail of the mainly used terminal needed to be made into the last, and there was a problem of it having been user-unfriendly and being easy to produce a mistake.

[0004] In order to cope with this problem, the following art has been used conventionally. Synchronous software is installed in each terminal, and the 1st art connects terminals by point-to-point, and takes the synchronization of e-mail software. This art is used when it seems that the mail box of the e-mail software built in the Personal Digital Assistant (PDA) and the mail box of the e-mail software built in the desktop type personal computer are synchronized.

[0005] The 2nd art synchronizes the mail box which uploaded mail data to the server on the Internet, and was distributed to two or more terminals via this server. The 3rd art is what is called Web mail that places a mail box on the Internet and performs an inspection and deletion of e-mail from each terminal not via a mail client but via a WWW (World Wide Web) browser.

[0006]

[Problem(s) to be Solved by the Invention]however, since the 1st art needs to install synchronous software for exclusive use in the terminal which wants to synchronize and it is necessary to carry out direct continuation of the two terminals of each other, the problem of being inapplicable is among the terminals which separated. Since synchronous software does not support all mail clients, there is also a problem that flexibility is missing. The 2nd art needs to upload the mail which needed to secure the memory storage for a synchronization apart from the mail spool on the Internet, and was downloaded to the server for a synchronization. For this reason, there is a problem that the expense concerning communication increases. Since it is necessary to install the dedicated software for a synchronization and the dedicated software for this synchronization does not support all mail clients apart from a mail client, there is a problem that flexibility is missing. Since the 3rd art does not download e-mail to a terminal, in order to operate an inspection, deletion, etc. of e-mail, it is necessary to connect it to a WWW server each time. In order to use the general-purpose WWW browser in which e-mail does not specialize, there is a problem in speed of response or user-friendliness.

[0007]This invention is made in order to solve the technical problem mentioned above, and it is a thing.

In the case where the purpose accesses the same mail account using the terminal of **, It is making it possible to take the synchronization of an E-mail between terminals, without a user being conscious, and providing a mail account and an operating environment which is processing e-mail by 1 to 1 for every terminal, without adding new software and hardware to each terminal or a mail server.

[0008]

[Means for Solving the Problem]In order to solve a technical problem mentioned above, an electronic mail system of this invention, A mail server, two or more terminals used as a mail client, and a proxy server, Consist of a communication network which connects these mutually, and these terminals transmit to a proxy server, and a mail operation command to a mail server a proxy server, The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for every terminal over an E-mail contained in a list and this list of the 1st memory measure that memorizes identification information for identifying a terminal, and E-mails stored in a mail server, Receive a mail operation command transmitted from a terminal, and a transmission origin terminal is identified with reference to the 1st memory measure, Check deletion information concerning a transmission origin terminal of a mailing list about an E-mail which is the target of this mail operation command, and when deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to a transmission origin terminal, and deletion information makes it finishing [, not but / deletion of deletion information which starts a transmission origin terminal about an E-mail by which the deletion request was carried out when a mail operation command is a deletion request], [deletion] When it becomes finishing deleting deletion information concerning an E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into a mailing list, a deleting operation command of an E-mail by which the deletion request was carried out is

transmitted to a mail server, When it is not a deletion request, it characterizes by having a control means which transmits a mail operation command to a mail server. An example of 1 composition of this electronic mail system is further provided with the 3rd memory measure a proxy server remembers a selection condition over various attributes which an E-mail has to be, When a control means adds an E-mail newly stored in a mail server to a mailing list, various attributes and a selection condition of this E-mail are compared, and deletion information of a mailing list is set as ending with deletion about an E-mail whose conditions corresponded.

[0009]A server of this invention intervenes between two or more terminals and a mail server used as a mail client, The 1st memory measure that memorizes identification information for being a server which transmits a mail operation command transmitted from these terminals to a mail server, and identifying a terminal, The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for every terminal over an E-mail contained in a list and this list of E-mails stored in a mail server, Receive a mail operation command transmitted from a terminal, and a transmission origin terminal is identified with reference to the 1st memory measure, Check deletion information concerning a transmission origin terminal of a mailing list about an E-mail which is the target of this mail operation command, and when deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to a transmission origin terminal, and deletion information makes it finishing [, not but / deletion of deletion information which starts a transmission origin terminal about an E-mail by which the deletion request was carried out when a mail operation command is a deletion request], [deletion] When it becomes finishing deleting deletion information concerning an E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into a mailing list, a deleting operation command of an E-mail by which the deletion request was carried out is transmitted to a mail server, When it is not a deletion request, it characterizes by having a control means which transmits a mail operation command to a mail server. An example of 1 composition of this server is further provided with the 3rd memory measure that memorizes a selection condition over various attributes which an E-mail has, and a control means, In adding an E-mail newly stored in a mail server to a mailing list, various attributes and a selection condition of this E-mail are compared, and deletion information of a mailing list is set as ending with deletion about an E-mail whose conditions corresponded.

[0010]A program of this invention receives a mail operation command transmitted from two or more terminals used as a mail client in a computer, It is a program for making it function as a means to transmit to a mail server, The 1st memory measure that memorizes identification information for identifying a terminal for a computer, The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for every terminal over an E-mail contained in a list and this list of E-mails stored in a mail server, Receive a mail operation command transmitted from a terminal, and a transmission origin terminal is identified with reference to the 1st memory measure, Check deletion information concerning a transmission origin terminal of a mailing list about an E-mail which is the target of this mail operation command,

and when deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to a transmission origin terminal, and deletion information makes it finishing [, not but / deletion of deletion information which starts a transmission origin terminal about an E-mail by which the deletion request was carried out when a mail operation command is a deletion request], [deletion] When it becomes finishing deleting deletion information concerning an E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into a mailing list, a deleting operation command of an E-mail by which the deletion request was carried out is transmitted to a mail server, When it is not a deletion request, it is made to function as a control means which transmits a mail operation command to a mail server. The 3rd memory measure that memorizes a selection condition over various attributes in which, as for an example of 1 composition of this program, an E-mail has a computer further, In adding an E-mail newly stored in a mail server to a mailing list, various attributes and a selection condition of this E-mail are compared, and it is made to function about an E-mail whose conditions corresponded as a means to set deletion information of a mailing list as ending with deletion. [0011]

[Embodiment of the Invention] This invention makes a proxy server intervene between two or more terminals and the mail server used as a mail client, When the same user accesses the same mail account using two or more terminals, A mail account and an operating environment which is processing e-mail by 1 to 1 are provided for every terminal, without adding new software and hardware to each terminal or a mail server. Hereafter, an embodiment of the invention is described in detail with reference to drawings. Drawing 1 is a block diagram showing the composition of the electronic mail system used as a 1st embodiment of this invention. This electronic mail system comprises the communication network 130 which connects the proxy server 100 of this invention, the mail server 110, the terminal A121, the terminal B122, and these mutually, as shown in drawing 1.

[0012] The proxy server 100 is a computer like a workstation, and is provided with the substitute treating part 101, the terminal information database (it is henceforth described as the terminal information DB) 102, and the mailing list database (it is henceforth described as the mailing list DB) 103, for example. The substitute treating part 101 mediates between two or more terminals 121, 122 and the mail servers 110 used as a mail client, It is a control means which transmits the mail operation command transmitted from these terminals 121, 122 to the mail server 110, The mail server 110 was accessed instead of the terminal A121 or the terminal B122, and it has the function to operate independently the E-mail stored in the mail server 110 for every terminal, respectively. This substitute treating part 101 is realized by executing the processing program stored in the storage device (not shown) which constitutes the proxy server 100 by this computer.

[0013] As a database which terminal information DB102 is the 1st memory measure that memorizes the identification information for identifying a terminal, and holds information required in order that the substitute treating part 101 may identify two or more terminals which a user uses, It is stored in the storage device (not shown) which constitutes the proxy server 100. Here, terminal information DB102 consists of the user ID for identifying a user, an address of the mail server which has a user's mail account, and terminal ID for [which a user uses] identifying a

terminal altogether, and these are stored for every user. Each user registers the contents of terminal information DB102 beforehand.

[0014]An example of terminal information DB102 is shown in drawing 2. In the figure, "the user A" shows user ID and "mailsv.domain.com" shows the address of a mail server. "n.n.n.n/mask" shows terminal ID of the terminal A121, and "m.m.m.m/mask" shows terminal ID of the terminal B122. Here, "n.n.n.n/mask" is the network address and net mask of the terminal A121, and "m.m.m.m/mask" is the network address and net mask of the terminal B122. In this embodiment, the communication network 130 is an IP network, and since it has a network address where each terminal does not overlap, respectively and does not change, the network address of each terminal is used as terminal ID which identifies each terminal.

[0015]As a database which mailing list DB103 is the 2nd memory measure that memorizes a mailing list, and holds information for the substitute treating part 101 to perform acquisition and deletion of an E-mail for every terminal which a user uses, It is stored in the storage device (not shown) which constitutes the proxy server 100. User ID for mailing list DB103 to identify a user here, The E-mail formed about each E-mail saved at the mail server 110 An identifier (it is henceforth described as e-mail ID) identifiable to a meaning, It consists of a deletion flag which shows whether the deletion command was published to the E-mail which a user uses to each e-mail ID, and which was formed for every terminal, and these are stored for every user.

[0016]An example of mailing list DB103 is shown in drawing 3. In the figure, "the user A" shows user ID and "mail0001", "mail0002", and "mail0003" show e-mail ID. 0 and x show the state of a deletion flag and it is shown that x was deleted. In this case, the E-mail addressed to user A "mail0001", "mail0002", and "mail0003" are saved at the mail server 110, It is shown that the user A deleted from the terminal A to "mail0003", and deleted from the terminal B to "mail0002." E-mail ID of mailing list DB103 is e-mail ID of the E-mail saved at the mail server 110, when the proxy server 100 finally accesses the mail server 110.

[0017]The mail server 110 is the same as the conventional mail server, and the E-mail sent to the registered user is stored in the secondary storage (not shown) called a mail spool according to a user. In this case, the mail server 110 is a computer like a workstation, and operates as a mail server by performing mail server software installed in this computer, for example.

[0018]The terminal A121 and the terminal B122 are mail clients which perform acquisition and deletion of the E-mail stored in the mail server 110. These terminals are desktop type personal computers, portable personal computers, etc. with which mail client software was installed, It operates as a mail client by performing mail client software with which these computers were installed. In this embodiment, the terminal A121 and the terminal B122 set up mail client software consider that the proxy server 100 is a mail server, and connect in acquisition and deletion of an E-mail, respectively.

[0019]Next, operation of the proxy server 100 of this invention is explained to an example for the electronic mail system shown by drawing 1. Here, the data shown by drawing 2 shall be stored in terminal information DB102 of the proxy server 100, and the data shown by drawing 3 shall be stored in mailing list DB103. As shown in drawing 4, the E-mail (e-mail ID "mail0002", "mail0003", "mail0004", "mail0005") of four copies shall be stored in the mail server 110 at user A.

[0020]First, with reference to drawing 5, login operation of the proxy server 100 is explained to an example for operation in case the user A140 logs in to the mail server 110 via the proxy server 100 from the terminal A121. Drawing 5 is a flow chart which shows login operation of the proxy server 100. First, the user A140 connects the terminal A121 to the communication network 130, and starts a mail client. By prior setting out by the user A140, since the mail client considers that the proxy server 100 is the mail server 110, it connects with the proxy server 100 and it transmits the user's A140 user ID and password in the mail server 110.

[0021]The proxy server 100 will check whether with reference to terminal information DB102 and mailing list DB103, the user ID which received exists in all of these databases, if the user ID and the password which were transmitted from the terminal A121 are received (Step S01). In this case, it is checked whether "the user A" is registered into terminal information DB102 and mailing list DB103. When an identification result is no, an authentication error is transmitted to the terminal A121, and processing is closed. If user ID exists, it will be checked whether with reference to terminal information DB102, the terminal A121 is registered as a terminal which this user ID uses (Step S02). In this case, it is checked whether the IP address of the terminal A121 is registered into the terminal information of the user A of terminal information DB102. When an identification result is no, an authentication error is transmitted to the terminal A121, and processing is closed.

[0022]When the terminal A121 is registered, the address of the mail server 110 which a user uses is acquired from terminal information DB102 (Step S03), and it connects with the mail server 110 (Step S04). In this case, since the terminal A121 transmits "the user A" as user ID, it is connected to "mailsv.domain.com" which is a mail server which the user A uses. Next, it is checked whether connection with the mail server 110 has been successful (Step S05). When an identification result is no, a connection error is transmitted to the terminal A121, and processing is closed.

[0023]If connection is successful, login is tried to the mail server 110 with the user ID and the password which were received from the terminal A121 (Step S06), and if the mail server 110 returns a login success response, it will be regarded as a right user (Step S07). When login goes wrong, an authentication error is transmitted to the terminal A121, and processing is closed. If it succeeds in login, the newest mailing list that transmits a list request to the mail server 110, and is shown in drawing 4 from the mail server 110 will be acquired (Step S08), and it will combine with the mailing list shown by drawing 3 which the proxy server 100 holds (Step S09). Next, a login success response is returned to the terminal A121 (Step S10).

[0024]So that the user's A electronic mailing list in the E-mail addressed to user A stored in the mail server 110 and mailing list DB103 the proxy server's 100 may be in agreement with combination of a mailing list here, It is updating mailing list DB103 of the proxy server 100, and taking over the deletion record for every terminal to e-mail ID of the updated mailing list. In this case, in the mailing list (drawing 3) of the proxy server 100, although the E-mail of e-mail ID"mail0001" exists, since it is deleted, it deletes out of a mailing list from on the mail server 110 (drawing 4). Since e-mail ID"mail0004" and the E-mail of "mail0005" are newly added on the mail server 110, it adds to the mailing list of

the proxy server 100. When adding new mail to a mailing list, it is made for the mail to appear from all the terminals which the user registered.

[0025]As a result, to mailing list DB103 of the proxy server 100. As shown in drawing 6, the E-mail (e-mail ID"mail0002", "mail0003", "mail0004", "mail0005") of four copies is registered into the user's A electronic mailing list, The deletion record for every [of having deleted "mail0003" from the terminal A121 and having deleted "mail0002" from the terminal B122] terminal is succeeded. Although the example which logged in from the terminal A121 here explained, if it is the terminal registered into terminal information DB102, the proxy server 100 will perform same operation.

[0026]Next, operation of the proxy server 100 when a user publishes the mail operation command of mailing list acquisition from a terminal is explained. Drawing 7 is a flow chart which shows mailing list report operation of the proxy server 100 when a user publishes the mail operation command of mailing list acquisition from a terminal. Here, the case where the user A140 performs mailing list acquisition operation from the terminal A121 is explained to an example.

[0027]First, if the mail operation command of mailing list acquisition is received, the proxy server 100 searches terminal information DB102, and specifies a request source terminal (Step S11). In this case, in order to specify a terminal, the network address obtained from the IP address of the accessed terminal is compared with the network address and net mask which are registered into terminal information DB102, and it carries out by looking for an equal. For example, supposing the IP address of the accessed terminal is n.n.n.n, terminal information DB102 shown by drawing 2 shows that the terminal is the terminal A121.

[0028]Next, mailing list DB103 is searched and the mailing list which extracted only the mail whose terminal of this ** is not deleted from list information is generated (Step S12). In this case, since it is recorded from the terminal A121 as information on the user's A mailing list that the E-mail of e-mail ID"mail0003" is ending with deletion as shown in drawing 6, As shown in drawing 8, the mailing list which consists of e-mail ID"mail0002", "mail0004", and "mail0005" is generated. Next, the generated mailing list is transmitted to a request source terminal (Step S13).

[0029]Although the example which published the mail operation command of mailing list acquisition from the terminal A121 explained here, it is also the same as when the mail operation command of mailing list acquisition is published from other terminals. For example, when the mail operation command of mailing list acquisition is published from the terminal B122, Since it is recorded from the terminal B122 that the E-mail of e-mail ID"mail0002" is ending with deletion as shown in drawing 6, As shown in drawing 9, the mailing list which consists of e-mail ID"mail0003", "mail0004", and "mail0005" is generated, and it transmits.

[0030]Next, operation of the proxy server 100 when a user publishes the mail operation command of mail text acquisition from a terminal is explained. Drawing 10 is a flow chart which shows the mail text acquisition operation of the proxy server 100 when a user publishes the mail operation command of mail text acquisition from a terminal. Here, the case where the user A performs mail text acquisition operation from the terminal A121 is explained to an example.

[0031]First, the proxy server 100 compares the specified E-mail with the mailing list of the user concerned with reference to mailing list DB103, if the mail

operation command of mail text acquisition is received. With whether it exists, while the specified E-mail lists, and the terminal (Step S21) accessed even if it existed, in being ending with deletion (Step S22), it returns an error to this terminal. When that is not right, an e-mail acquisition command is transmitted to the mail server 110 (Step S23), and it is checked whether the E-mail specified from the mail server 110 has been acquired (Step S24). When the specified E-mail is able to be acquired, it transmits to the terminal which accessed the acquired E-mail (Step S25), and processing is ended. When the specified E-mail is not able to be acquired, an error is returned to the accessed terminal.

[0032]When operation is performed from the terminal A121, specified e-mail ID transmits an error here at the time of "mail0001" and "mail0003", for example, An e-mail acquisition command is transmitted to the mail server 110 at the time of "mail0002", "mail0004", and "mail0005." It is set up not perform deletion although an e-mail acquisition command transmits the E-mail with which the mail server 110 was specified.

[0033]Next, operation of the proxy server 100 when a user publishes the mail operation command of e-mail deletion from a terminal is explained. Drawing 11 is a flow chart which shows e-mail deletion operation of the proxy server 100 when a user publishes the mail operation command of e-mail deletion from a terminal. Here, the case where the user A performs e-mail deleting operation from the terminal A121 is explained to an example.

[0034]First, the proxy server 100 compares the specified E-mail with the mailing list of the user concerned with reference to mailing list DB103, if the mail operation command of e-mail deletion is received. With whether it exists, while the specified E-mail lists, and the terminal (Step S31) accessed even if it existed, in being ending with deletion (Step S32), it returns an error to this terminal. When it exists and is not deleted from the accessed terminal while the specified mail lists, the mail specified in the mailing list of this terminal is set as ending with deletion (Step S33).

[0035]Next, with reference to mailing list DB103, it is checked whether it is finishing [the mail specified from all the terminals which the user A140 uses / deletion] (Step S34). Case [which has been deleted / all the terminals to], the e-mail deletion command which deletes the E-mail specified as the mail server 110 is transmitted (Step S35), and it is checked whether the E-mail with which the mail server 110 was specified has been deleted (Step S36). When the specified E-mail is able to be deleted, the item (e-mail ID and deletion flag) of the E-mail specified from the mailing list of the user concerned is deleted (Step S37), a deletion success is transmitted to the accessed terminal (Step S38), and processing is ended.

[0036]When the specified E-mail is not able to be deleted, an error is returned to the accessed terminal. In this case, required error handling, such as canceling processing of Step S33, for example, is performed. When there is a terminal which is not ending with deletion at Step S34, it transmits to the terminal which accessed a deletion success (Step S38), and processing is ended.

[0037]Terminal information DB102 which identifies the connected terminal according to this embodiment as explained above, Mailing list DB103 holding deleted [e-mail] - sheep deletion list for every terminal, The proxy server 100 which has the substitute treating part 101 which performs predetermined processing with reference

to terminal information DB102 and mailing list DB103 corresponding to the response from the mail operation command and the mail server 110 from a terminal is formed, Since it was made to intervene between the mail server 110 and each terminal 121,122, even if the same mail account is accessed from two or more terminals and it performs mail operation, it is possible to synchronize the mail box of a mail client for every terminal. Thereby, an operating environment which is operating one mail account for every terminal can be acquired.

[0038]Next, the electronic mail system used as a 2nd embodiment of this invention is explained. Drawing 12 is a block diagram showing the composition of the electronic mail system used as a 2nd embodiment of this invention. That this electronic mail system differs from what was shown in drawing 1 in the figure, The proxy server 200 and the mail server 210 are connected to the Internet 230, The terminals A221 are the public line 220 and Internet Service Provider A (henceforth). It is connected with the proxy server 200 via 231 and the Internet 230 which are described as ISP-A, It is that the terminal B222 is connected with the proxy server 200 via the public line 220, Internet Service Provider B(it is henceforth described as ISP-B) 232, and the Internet 230.

[0039]In this case, since an Internet Service Provider has a peculiar domain name and a peculiar network address, the proxy server 200, It is also possible to identify discernment of terminal ID of terminal information DB202 at an Internet Service Provider's domain name and network address. It may be made to set up regard [when the IP address of a terminal is "n.n.*.*" (* expresses any value), for example, regard it as the terminal A221, and] it as the terminal B222 when it is "m.m.m.*."

[0040]Since the electronic mail system in this embodiment is the same as a 1st embodiment except connecting each terminal 221,222 to the Internet 230 via ISP-A231 and ISP-B232 which each has made a contract of, explanation is omitted. When connecting it with one mail account from different environment, for example like a house and a company according to this embodiment, the same effect as a 1st embodiment is acquired.

[0041]Next, the electronic mail system used as a 3rd embodiment of this invention is explained. Drawing 13 is a block diagram showing the composition of the electronic mail system used as a 3rd embodiment of this invention. That this electronic mail system differs from what was shown in drawing 12 in the figure, The proxy server 300 is provided with the e-mail filter 304, and when generating the mailing list which the substitute treating part 301 stores in mailing list DB303, the e-mail filter 304 is referred to, It is having set the deletion flag in a mailing list to the E-mail corresponding to the conditions specified by a user.

[0042]The e-mail filter 304 is the 3rd memory measure that memorizes a selection condition, As a database which specified the sender of an E-mail, a title, the contents of the mail text, data volume (mail size), and the conditions over each attribute called the existence of an attached file, It is stored in the storage device (not shown) which is constituted so that setting out of conditions is possible respectively about all the terminals which a user uses for every user, and constitutes the proxy server 300. An example of the e-mail filter 304 is shown in drawing 14. In the figure, it is set up use finishing [the mailing list of the terminal A / deletion of an E-mail with the mail size of greater than 100 KB] as the user's A filter condition, and the mailing list of the terminal B is set up use

and the new mail is set as ending with deletion about the congruous terminals (Step S49). Next, the mailing list which the proxy server 300 holds is updated (Step S50), and a login success response is returned to the terminal A321 (Step S51).

[0048] In this case, in Step S49, since "mail0004" and "mail0005" are new mails among the mails on the mail server 310, An e-mail acquisition command is transmitted to the mail server 310 about these mails, a mail text is acquired, and it compares with the e-mail filter 304. Here, since the mail corresponding to the e-mail filter "mail size is larger than 100 KB" to the terminal A is "mail0005" as shown in drawing 14, "mail0005" regards it as what was deleted from the terminal A321. "mail0004" which agrees in the e-mail filter "the sender is B" of the terminal B322 similarly regards it as what was deleted from the terminal B322.

[0049] So that the mailing list acquired from the mail server 310 and the mailing list of the proxy server 300 may be in agreement in Step S50, While updating mailing list DB303 of the proxy server 300 and taking over the deletion record for every terminal to e-mail ID of the updated mailing list, the deletion flag set up at Step S49 about new mail is written in. As a result, to mailing list DB303 of the proxy server 300. As shown in drawing 17, the E-mail (e-mail ID "mail0002", "mail0003", "mail0004", "mail0005") of four copies is registered into the user's A electronic mailing list, While the deletion record for every [of having deleted "mail0003" from the terminal A321 and having deleted "mail0002" from the terminal B322] terminal is succeeded, The record by which new mail "mail0004" was deleted from the terminal B322, and new mail "mail0005" was deleted from the terminal A321 is written in.

[0050] Although the example which logged in from the terminal A321 explained here, if it is the terminal registered into terminal information DB302, the proxy server 300 will perform same operation. Since the operating sequence in mailing list acquisition, mail text acquisition, and e-mail deletion is the same as a 1st embodiment, explanation is omitted. Since the e-mail filter was further added to the proxy server of a 1st or 2nd embodiment according to this embodiment, new mail can be made finishing [deletion] beforehand according to the filter condition defined for every terminal. As opposed to what has the small capacity of the E-mail in which reception thereby, for example like a Personal Digital Assistant is possible, The effect of preventing reception of an unsolicited junk e-mail is acquired by making it not receive the E-mail of the effect that it can avoid receiving the E-mail more than constant capacity, or a specific addresser.

[0051] Although the embodiment of the invention explained the case where the number of the terminals which a user uses was two, this invention is applied when accessing one mail account using two or more terminal units, and the number of terminal units is not restricted to this. In an embodiment of the invention, when a terminal attests by connecting with a proxy server first, and the information on the terminal connected on the database which a proxy server has does not exist, it becomes an authentication error, but it is also possible to transpose this operation to the operation described below. Even if there is no information on a database and a terminal is unknown, it attests to a mail server using the user ID and the password which the terminal has transmitted previously, If the attestation is successful, it will consider that the terminal is a terminal which the user is newly going to add, and will be made to register with a database automatically. By doing in this way, when a user uses a new terminal, before writing e-mail,

restrictions that terminal information must be beforehand registered on a proxy server can be lost.

[0052] In the embodiment of the invention, in order that a proxy server might identify a terminal, the network address and the net mask were used, but the terminal identification methods other than this may be used. The following methods can be considered as other terminal identification methods. How to reverse-lengthen the IP address of a terminal, to acquire a host name, and to identify a terminal in the domain name portion of them. How to provide the unified user ID which is used when discriminating a terminal for a password from user ID for every terminal using a separate thing and accessing these user ID and passwords at a mail server, and the conversion table changed into a password on a proxy server. How to identify a terminal with the port number which the proxy server received the connection from a terminal by two or more TCP ports, and the terminal has connected. In this case, a user sets up a mail client appropriately connect with another port for every terminal, and acquire e-mail. How to identify a terminal by the IP address which the proxy server had two or more IP addresses, and the terminal has connected. In this case, a user sets up a mail client appropriately connect with another IP address (or host name) for every terminal, and acquire e-mail.

[0053]

[Effect of the Invention] As explained above, according to this invention, the proxy server holds the mailing list which shows whether it is finishing [deletion of each E-mail] from each terminal, Even if it deletes an E-mail from a certain terminal, unless all other terminals delete to an E-mail, in order to make it not deleted, in spite of having accessed the same mail server from each terminal, from a mail server, it is visible as if the independent mail server existed. For this reason, when a certain user accesses the same mail account using two or more terminals, even if it adds change to neither a terminal nor a mail server at all, each terminal can receive the always same E-mail, without a user being conscious. When deleting an E-mail from a certain terminal, it can delete without caring about whether it is finishing [download of an E-mail] at other terminals. Namely, a mail account and an operating environment which is processing the E-mail by 1 to 1 are acquired for every terminal.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] An electronic mail system comprising:

A mail server.

Two or more terminals used as a mail client.

A proxy server.

Consist these of a communication network connected mutually, and said terminal, Transmit to said proxy server and a mail operation command to said mail server said proxy server, The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for said every terminal over an E-mail contained in a list and this list of the 1st memory measure that memorizes identification information for identifying said terminal, and E-mails stored in said mail server, Receive said mail operation command transmitted from said terminal, and a transmission origin terminal is identified with reference to said 1st memory measure, Check said deletion information concerning said transmission origin terminal of said mailing list about an E-mail which is the target of this mail operation command, and when said deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to said transmission origin terminal, and said deletion information makes it finishing [, not but / deletion of said deletion information which starts said transmission origin terminal about an E-mail by which the deletion request was carried out when said mail operation command is a deletion request], [deletion] When it becomes finishing deleting said deletion information concerning said E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into said mailing list, a deleting operation command of said E-mail by which the deletion request was carried out is transmitted to said mail server, A control means which transmits said mail operation command to said mail server when it is not a deletion request.

[Claim 2] Said proxy server is further provided with the 3rd memory measure that memorizes a selection condition over various attributes which an E-mail has, and said control means, In adding said E-mail newly stored in said mail server to said mailing list, The electronic mail system according to claim 1 characterized by setting said deletion information of said mailing list as ending with deletion about said E-mail which compared various attributes and said selection condition of this E-mail, and whose conditions corresponded.

[Claim 3]A server comprising:

The 1st memory measure that is a server which transmits a mail operation command which intervenes between two or more terminals and a mail server used as a mail client, and is transmitted from these terminals to said mail server, and memorizes identification information for identifying said terminal.

The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for said every terminal over an E-mail contained in a list and this list of E-mails stored in said mail server.

Receive said mail operation command transmitted from said terminal, and a transmission origin terminal is identified with reference to said 1st memory measure, Check said deletion information concerning said transmission origin terminal of said mailing list about an E-mail which is the target of this mail operation command, and when said deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to said transmission origin terminal, and when said deletion information is [not ending with deletion but said mail operation command] a deletion request, Finishing [deletion of said deletion information which starts said transmission origin terminal about an E-mail by which the deletion request was carried out] is used, When it becomes finishing deleting said deletion information concerning said E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into said mailing list, a deleting operation command of said E-mail by which the deletion request was carried out is transmitted to said mail server, A control means which transmits said mail operation command to said mail server when it is not a deletion request.

[Claim 4]Have further the 3rd memory measure that memorizes a selection condition over various attributes which an E-mail has, and said control means, In adding said E-mail newly stored in said mail server to said mailing list, The server according to claim 3 characterized by setting said deletion information of said mailing list as ending with deletion about said E-mail which compared various attributes and said selection condition of this E-mail, and whose conditions corresponded.

[Claim 5]A mail operation command transmitted from two or more terminals used as a mail client in a computer is received, It is a program for making it function as a means to transmit to a mail server, The 1st memory measure that memorizes identification information for identifying a terminal for a computer, The 2nd memory measure that memorizes a mailing list which consists of deletion information which shows existence of a deletion request for said every terminal over an E-mail contained in a list and this list of E-mails stored in a mail server, Receive a mail operation command transmitted from said terminal, and a transmission origin terminal is identified with reference to said 1st memory measure, Check said deletion information concerning said transmission origin terminal of said mailing list about an E-mail which is the target of this mail operation command, and when said deletion information is ending with deletion, Return a response which shows that the E-mail concerned does not exist to said transmission origin terminal, and said deletion information makes it finishing [, not but / deletion of said deletion information which starts said transmission origin terminal about an E-mail by which the deletion request was carried out when said mail operation command is a deletion

request], [deletion] When it becomes finishing deleting said deletion information concerning said E-mail by which the deletion request was carried out at all the terminals of the user concerned registered into said mailing list, a deleting operation command of said E-mail by which the deletion request was carried out is transmitted to said mail server, A program for making it function as a control means which transmits said mail operation command to said mail server, when it is not a deletion request.

[Claim 6]The 3rd memory measure that memorizes a selection condition over various attributes in which an E-mail has a computer further, In adding said E-mail newly stored in said mail server to said mailing list, The program according to claim 5 making it function as a means to set said deletion information of said mailing list as ending with deletion, about said E-mail which compared various attributes and said selection condition of this E-mail, and whose conditions corresponded.

[Translation done.]

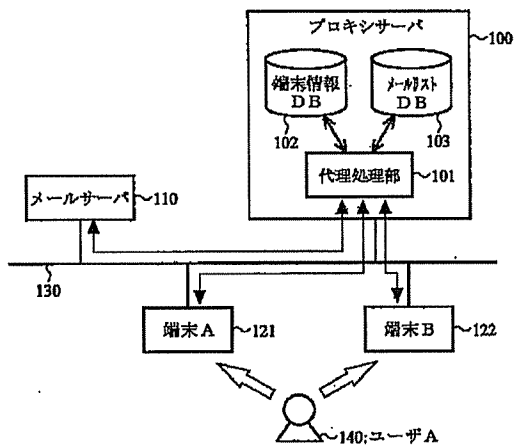
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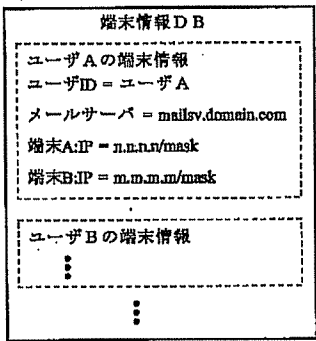
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- 3.In the drawings, any words are not translated.

DRAWINGS

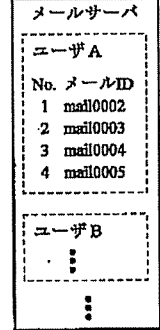
[Drawing 1]



[Drawing 2]



[Drawing 4]



[Drawing 8]

端末A	
No.	メールID
1	mail0002
2	mail0004
3	mail0005

[Drawing 9]

端末B	
No.	メールID
1	mail0003
2	mail0004
3	mail0005

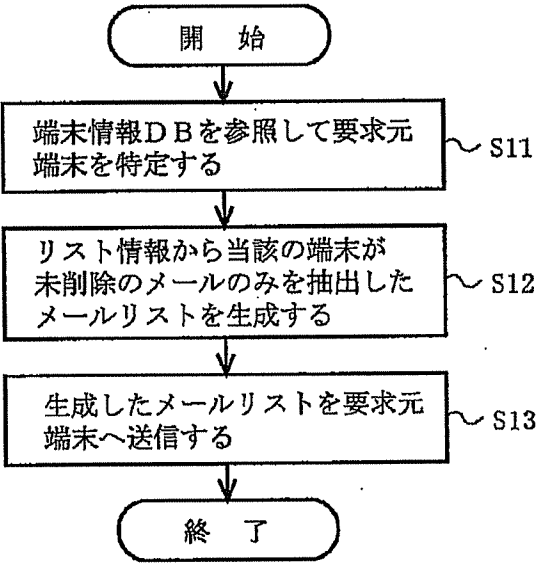
[Drawing 3]

メールリストDB			
ユーザAのメールリスト			
ユーザID = ユーザA			
No.	メールID	端末A	端末B
1	mail0001	○	○
2	mail0002	○	×
3	mail0003	×	○
ユーザBのメールリスト			
⋮			
⋮			

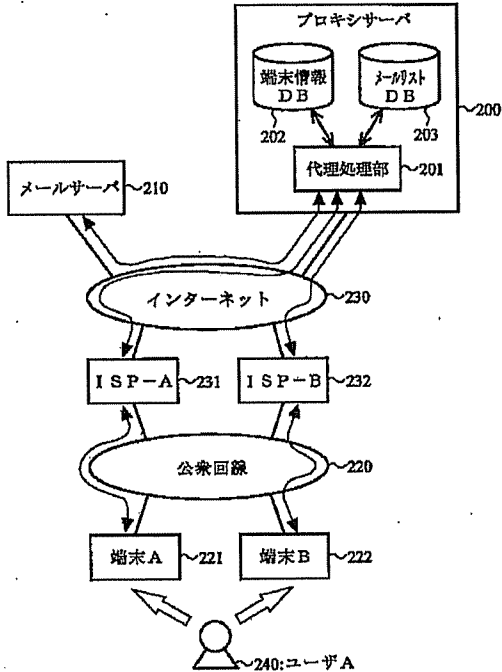
[Drawing 6]

メールリストDB			
ユーザAのメールリスト			
ユーザID = ユーザA			
No.	メールID	端末A	端末B
1	mail0002	○	×
2	mail0003	×	○
3	mail0004	○	○
4	mail0005	○	○
ユーザBのメールリスト			
⋮			
⋮			

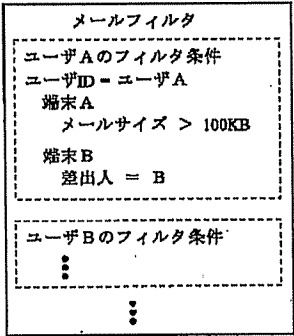
[Drawing 7]



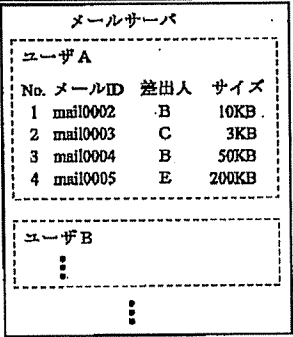
[Drawing 12]



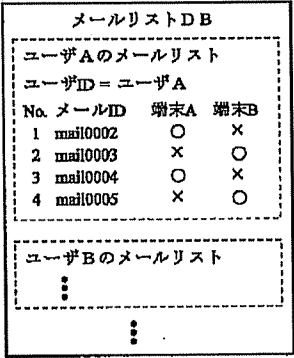
[Drawing 14]



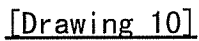
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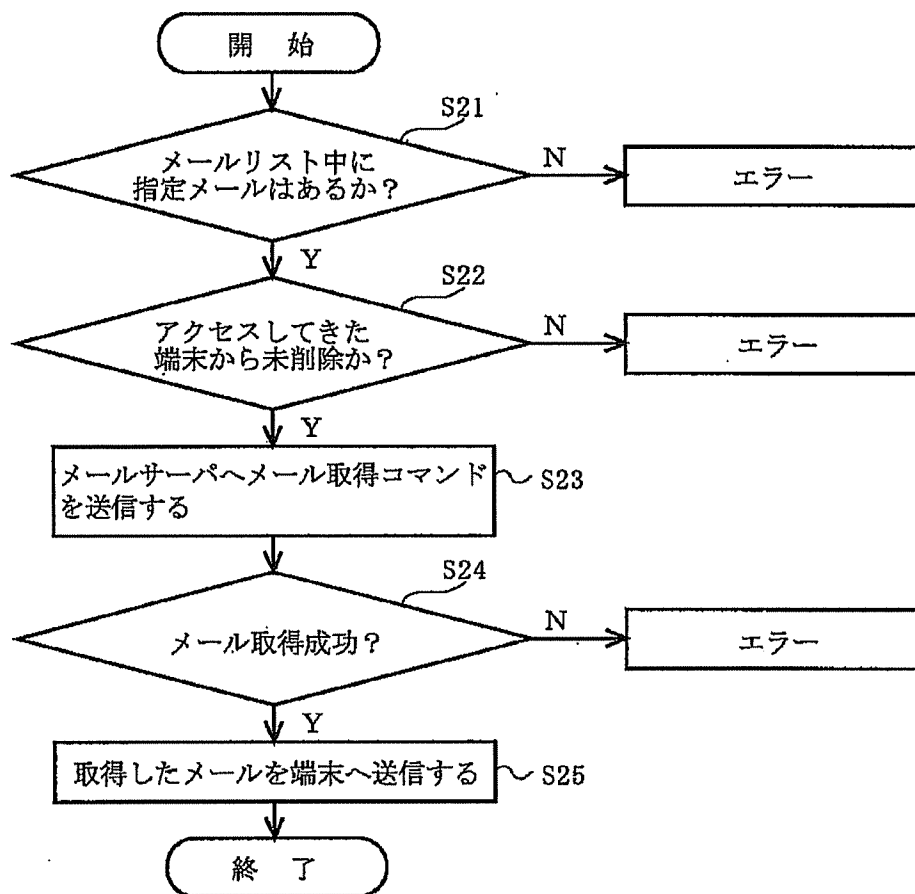


[Drawing 17]

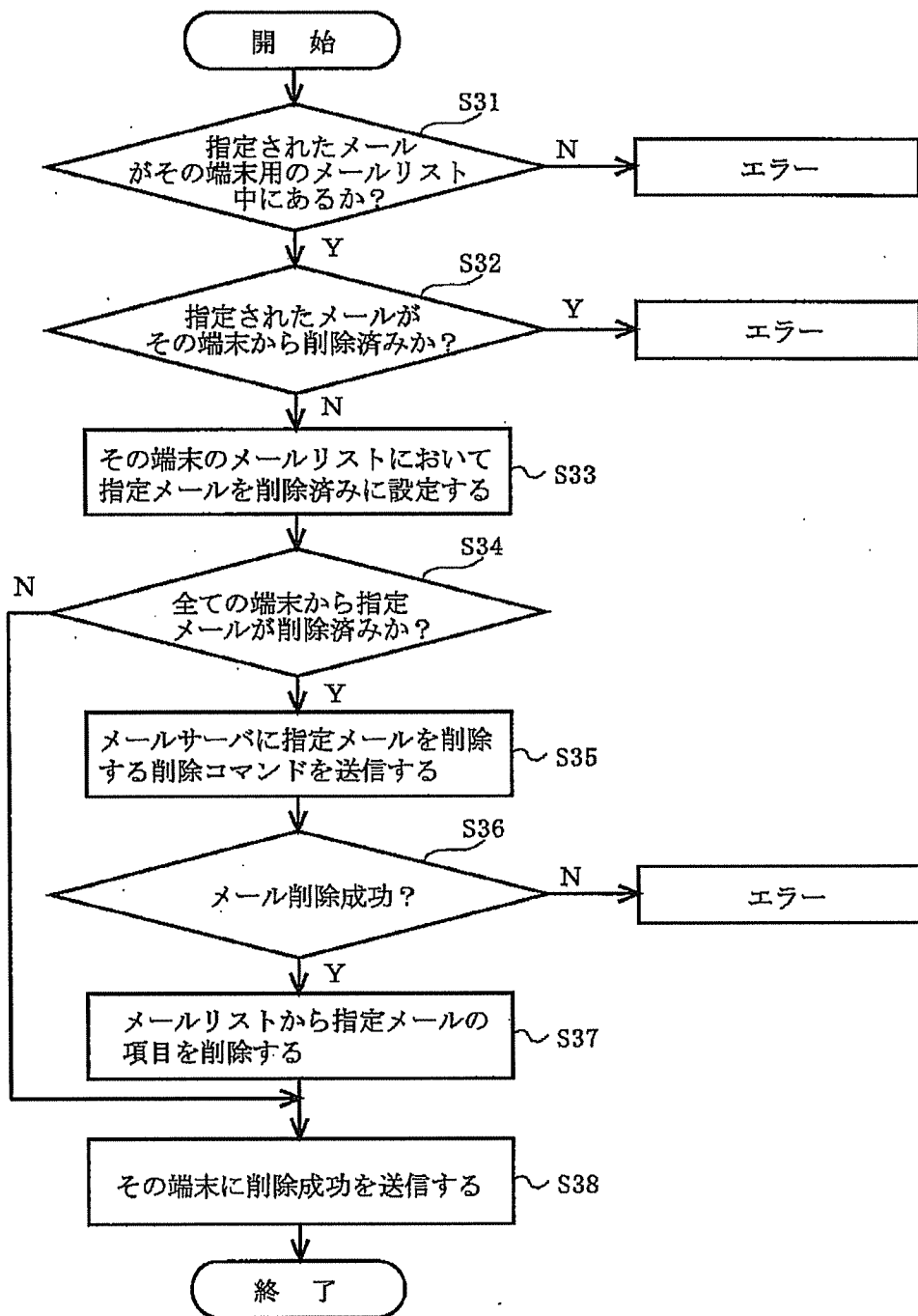


[Drawing 5]

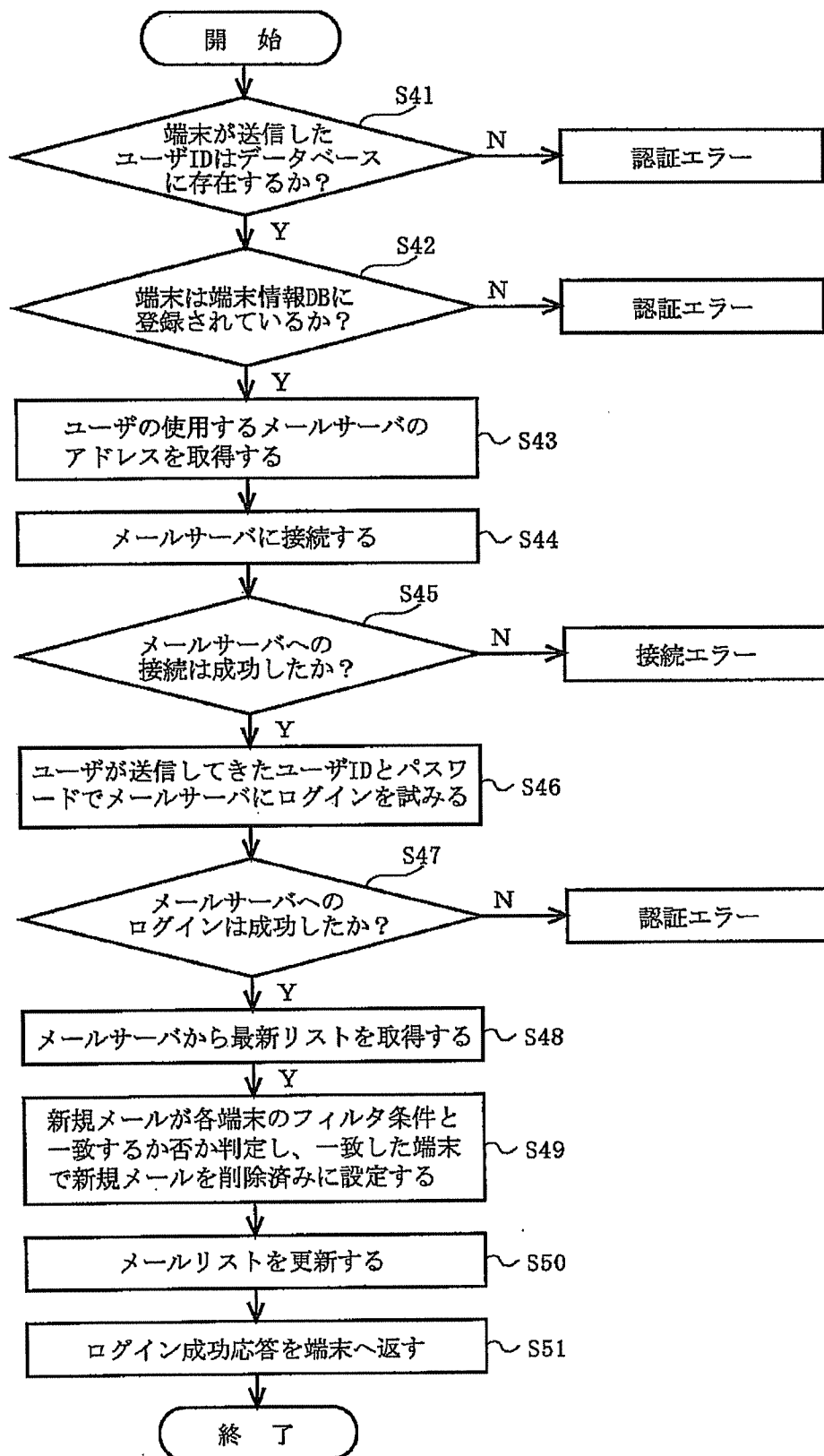




[Drawing 11]



[Drawing 13]



[Translation done.]